

## METHOD AND APPARATUS FOR AN ENHANCED OFDM SYSTEM

### Abstract of the Disclosure

5           A method and apparatus for communicating in an OFDM system whereby subcarriers of the OFDM system are multiplexed between at least a first and a second transmit antenna. The subcarriers are separated between the at least two transmit antennas so that a subcarrier and a mirror subcarrier are not transmitted on the same transmit antenna and that adjacent subcarriers on the same antenna  
10 are at least two subcarrier frequency bandwidths apart. The method and apparatus for communicating is compatible with either a single receive antenna or with more than one receive antennas. In an embodiment, the method and apparatus further includes receiving the transmitted subcarriers from at least a first and second receive antenna. The subcarriers may also be separated so that the subcarrier and  
15 the mirror subcarrier are not received from the same receive antenna and that adjacent subcarriers on the same antenna are at least two subcarrier frequency bandwidths apart. The method and apparatus further includes combining the received transmitted subcarriers from the at least two receive antennas into a single data stream.